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Engineering safety. David Blockley (Ed) (McGraw-Hill, 1992). Reviewed by T.D. Hodgson. 224
Environmental pollution control engineering. C.S. Rao (John Wiley & Sons, 1991). Reviewed by R.F. Griffiths and C.J. Banks. 221
Environmental regulations and technology; autothermal thermophilic aerobic digestion of municipal wastewater sludge. US Environmental Protection Agency (Technomic Publishing, 1990). Reviewed by R. Palfrey and J. Dudley. 70
Facts on file dictionary of environmental science, The. L. Harold Stevenson and Bruce Wyman (Eds) (Facts on File Inc, 1991). Reviewed by R.F. Griffiths. 147
Guidelines for auditing process safety management systems. Center for Chemical Process Safety and the American Institute of Chemical Engineers (American Institute of Chemical Engineers, 1992). Reviewed by B. Blackburn. 301
Lessons from disaster: how organisations have no memory and accidents recur. Trevor Kletz (Institution of Chemical Engineers, 1993). Reviewed by F.P. Lees. 221
Managing chemical risks: corporate responses to SARA Title III (Revised edition). M.S. Baram, P.S. Dillon and B. Ruffle (Lewis Publishers, 1992). Reviewed by W. Nixon. 303
Plant guidelines for technical management of chemical process safety. Center for Chemical Process Safety of the American Institute of Chemical Engineers (American Institute of Chemical Engineers, 1992). Reviewed by B. Blackburn. 146
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Transport and remediation of sub-surface contaminants: colloidal, interfacial and surfactant phenomena (ACS Symposium Series No. 491). David A. Sabatini and Robert C. Knox (Eds) (American Chemical Society, 1992). Reviewed by R.D. Ludwig. 222
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